DOCUMENT RESUME

ED 183 965 CE 024 836

AUTHOR Brickell, Henry M.; Paul, Regina H.
TITLE Minimum Competencies and Transferable Skills: What Can Be Learned from the Two Movements. Information Series No. 142.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.; Policy Studies in Education, New York, N.Y.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 78
GRANT OB-NIE-G-78-0111
NOTE 71p.
AVAILABLE FROM National Center Publications, The National Center for Research in Vocational Education, The Ohio State University, 1960 Kenny Road, Columbus, OH 43210 ($5.10)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Competence; Competency Based Education; Job Skills; *Minimum Competencies; *Minimum Competency Testing; *Skill Development; *Transfer of Training; *Vocational Education

ABSTRACT

This paper compares and contrasts minimum competency testing and transferable skills in order to identify the important questions and issues to be considered by educational planners in developing programs intended to prepare students to meet the demands of both work and life. Each of the seven sections addresses a specific question related to minimum competencies and transferable skills. Sections included are (1) Why the Current Interest in Them?; (2) Whether Competencies or Skills?; (3) What Competencies and Skills?; (4) How Many?; (5) How Measured?; (6) When Measured?; and (7) What to Do with the Incompetent? Examples of transferable skills and characteristics are appended. (LRA)

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ED183965

Information Series No. 142

MINIMUM COMPETENCIES AND TRANSFERABLE SKILLS:

What Can Be Learned from the Two Movements

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1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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An Interim Report
On a Project Conducted Under
Grant No. OB-NIE-G-78-0111

The material in this publication was prepared pursuant to a grant with the National Institute of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to freely express their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official National Institute of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

National Institute of Education

FOREWORD

The National Center for Research in Vocational Education is continuing its programmatic research into occupational adaptability and transferable skills. This report (one of a series) is intended to examine the potential value of transferable skills as a contributing influence on completion criteria in secondary and post-secondary education. It is written for planners and practitioners, curriculum developers, administrators, guidance counselors, employers, and others involved in or concerned about promotion or completion criteria in secondary and post-secondary education.

The paper examines a variety of basic questions related to completion criteria. Dr. Brickell chose to compare and contrast *transferable skills* concepts with the *minimum competency testing* movement. While the paper does not attempt to review the pertinent literature, it does discuss the current state of knowledge in both domains, explores the relationships between them, and identifies the decision alternatives offered by each.

The National Center wishes to express its appreciation to Ed Hattauer of Columbia University, Joe Hojak of the Pennsylvania State Department of Education, Richard Hulsart of National Assessment of Educational Progress, Edward Roeber of the Michigan State Department of Education, and James Williams of the Ohio State Department of Education, for their cooperation and assistance at a review meeting discussing an early draft of the paper. The valuable advice of Bob Stump, project officer from the National Institute of Education, is also acknowledged. The planning and coordination of the paper was shared by William Ashley and Dr. Brickell. Technical editing was done by Connie Faddis. The paper was produced under the overall supervision of Frank Pratzner, Project Director of the Transferable Skills project at the National Center.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

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INTRODUCTION

This paper compares and contrasts two current movements in education: the introduction of minimum competency testing and the search for occupationally transferable skills. It finds similarities and differences and suggests what the two movements can learn from each other.

There is a third closely related movement *not* considered in this paper: the introduction of competency-based education. To avoid confusion and to alert the reader to the clear focus on *testing* in contrast to *instruction* throughout this paper, the following distinction is offered.

Distinguishing between Competency-Based Education and Minimum Competency Testing

Both competency-based education (CBE) and minimum competency testing (MCT) focus on intended learning outcomes, but CBE takes learning outcomes and plans backward to how they can be taught, while MCT takes learning outcomes and plans forward to how they can be measured, as indicated in Figure 1.

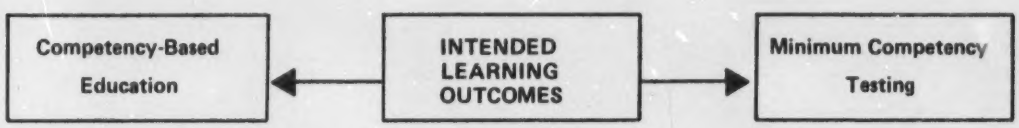

Figure 1. Interrelationship of competency-based education and minimum competency testing.

For example: *Given a monthly bank statement accompanied by cancelled checks, the student will be able to balance a checkbook.* The CBE expert would start with that intended learning outcome and go on to build an instructional unit to teach it. The MCT expert would start with the identical statement and go on to build a test to measure it.

CBE deals with instruction—the how of *teaching.* In contrast, MCT deals with measurement—the how much of *learning.* CBE examines the *learning ends* in order to choose the *educational means* (teaching methods and materials). MCT examines the *learning ends* in order to choose the *evaluation means* (testing methods and materials).

CBE is designed to produce learning, while MCT is designed to produce evidence of learning, as shown in Figure 2.

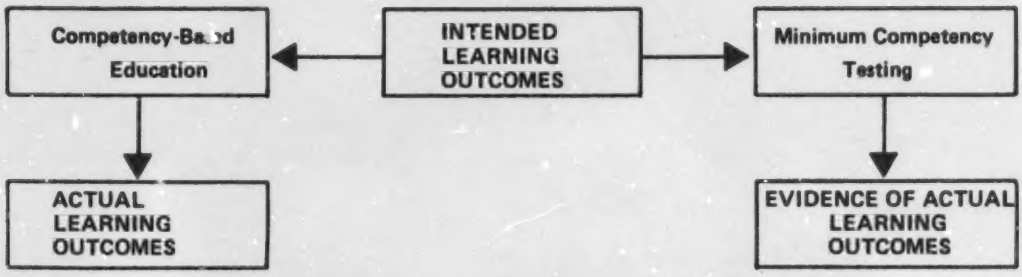

Figure 2. Learning outcomes as they relate to competency-based education and minimum competency testing.

CBE is indifferent to how learning will be measured; MCT is preoccupied with how learning will be measured.

MCT is indifferent to how learning will be produced; CBE is preoccupied with how learning will be produced.

CBE is driven by a professional concern with the best means for learning; MCT is driven by a public concern with the best ends for learning.

Using the Results of the Occupationally Transferable Skills Study to Serve CBE and MCT

The intended learning outcomes that are the basis for both CBE and MCT cannot be generated by either movement: They must be derived from outside sources, as shown in Figure 3.

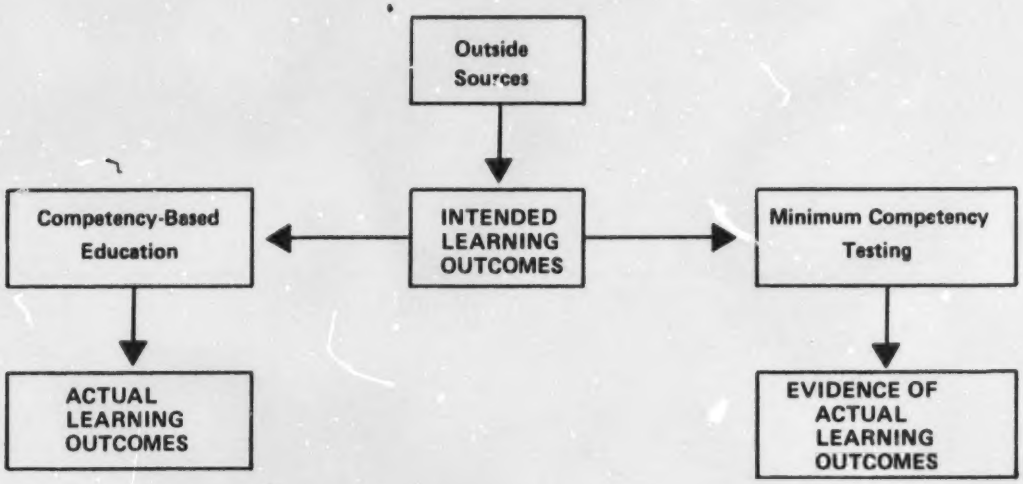

Figure 3. The relationship of outside sources to competency-based education and minimum competency testing.

That is, while both CBE and MCT begin with intended learning outcomes, neither movement has the subject specialists, the knowledge of learner needs and societal demands, or the psychological and philosophical expertise from which desirable learner outcomes can be drawn. CBE offers a methodology of instruction, grounded in a belief that teaching for clearly specified objectives is the best way to produce learning. MCT offers a methodology of evaluation, grounded in the belief that testing for clearly specified objectives is the best way to produce learning, at least at a minimum level. Neither CBE nor MCT offers any special insight about what students should learn. Thus both must look to outside sources for that.

The National Center's study of occupationally transferable skills offers both CBE and MCT such an outside source, grounded in an examination of contemporary occupational requirements, or—more specifically—in what it takes for a contemporary worker to be transferable from one job to another.

Recognizing the Universality of Occupationally Transferable Skills

What is perhaps most significant about the National Center's study of occupationally transferable skills is the fact that the skills identified to date are widely applicable, not only in occupations but in other sectors of life as well. That is, the skills found to be most useful at work also turn out to be extremely useful in leisure time, in family life, and in citizenship activities. This is traceable in part to the study's methodology, which accepted a virtually unlimited variety of nominations for the transferable skills lists; in part to the steadily growing proportion of occupations that require communications and interpersonal skills as well as manipulative skills; and in part to the fact that the focus on transferability yielded lists of skills that enable a person to succeed in many circumstances—including, it turns out, circumstances other than those of the work place.

Thus, the lists contain what can most accurately be called *transferable skills;* it would be misleading to limit them by the term occupationally transferable skills. They are actually lists of skills that have applicability in virtually every aspect and in every stage of life. For this reason, anyone concerned with minimum competency testing can benefit from a careful study of this paper and from a thoughtful consideration of the National Center's lists of transferable skills as a key source of competencies to be tested.

Bibliography

The material in this paper dealing with minimum competency testing was drawn chiefly from Brickell's *Let's Talk about . . . MINIMUM COMPETENCY TESTING* (1978).* Citations for this and other sources appear in the bibliography.

The material dealing with occupationally transferable skills was drawn primarily from the publications of the National Center listed inside the back cover.

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WHY THE CURRENT INTEREST IN THEM?

Minimum Competencies

Minimum competency testing is one of the most rapidly moving phenomena in education today. The topic is a matter of wide debate and experimentation. Probably no other concept has received as much legislative attention or caused as much state board of education activity in recent years.

A majority of the states have already moved—some through legislation and some through state board ruling—to adopt some minimum body of knowledge and skill as a requirement for high school graduation. Thousands of local school districts are setting their own requirements for high school graduation or for grade-to-grade promotion, most under state mandate but some on their own initiative. Both states and localities have appointed broadly representative advisory commissions to debate the issues and offer recommendations.

The major testing companies are developing and producing new competency tests or arranging to compute and report minimum competency scores on their existing tests. The major textbook publishers are examining their printed materials to see whether they contain lessons on the competencies that appear in the tests. Some local school districts are looking through their curriculum guides and course outlines to make sure they are teaching what the tests contain. A number of attorneys are speculating about what the courts will require as evidence of test validity, advance notice, and due process before they will allow a school board to delay promotion or withhold diplomas.

Why? A growing public restlessness about whether students are learning—especially whether they are learning the "basics," variously defined—is driving the minimum competency movement forward. Part of the public's evidence is anecdotal; part of it is statistical.

The anecdotes about failure to learn continue to spread. There are the employers' tales of high school graduates who don't know how to talk during interviews, can't fill out job applications, don't know how to compute their paycheck deductions. There are the parents' stories of getting gloomy news about their children in high school after years of sunny reports in the elementary grades. There are the customers' complaints about repairpersons who don't repair and salespersons who don't care. There are the colleges' groanings about having to open up remedial composition courses for freshmen who can't write.

Achievement test scores are sliding downward. That was a matter of debate at first, but the experts now agree that the slippage is real. The College Board Scholastic Aptitude Test scores and Achievement Test scores have both nosed down. The National Assessment periodic cycle of testing shows a decline in some basic skills, such as written composition. Many local school districts have been posting lower scores on their nationally standardized achievement tests supplied by commercial test makers.

The long time lines show the pattern best. Ever since 1945, the state of Iowa has administered the Iowa Tests of Basic Skills to elementary students throughout the state as a part of its statewide testing program. The scores went up steadily from 1945 to 1965, then flattened and tilted downward. By the late 1970's, the scores had dropped to the level of the late 1950's.

The declines are small, but they have come at the wrong time. They have come after 15 years of steadily rising school costs and steadily declining enrollments. They have come after 10 years of federal subsidies for the disadvantaged, subsidies directed primarily to those basic skills measured by the sliding test scores. They have come after 20 years of educational innovations introduced to improve learning. In short, the public restlessness arises from the juxtaposition of the rising curves of school costs and the falling curves of school learning.

Distinguished national commissions, panels of scholars, and individual experts have tried to explain the decline. They have placed the blame on the society and the schools, some finding more fault with one, some with the other. They have singled out television, divorce, and working mothers. They have pointed to the larger numbers of students going to college and taking college admission tests as well as the larger numbers of colleges recruiting students in the late 1970's whom they would have turned down as candidates in the early 1960's. They have written about administrators yielding to pressures to lower standards and inflate grades. They have speculated about the strengthening of teachers' unions and the weakening of teachers' dedication. They have cited the decline in the number of mandatory courses in basic skills and the broadening range of school responsibilities. All of it has been provocative; none of it has been conclusive.

Partly for lack of a single explanation and a ready cure, parents, citizens, and legislators have turned to minimum competency testing as a way to introduce standards from the outside, to stem the decline in learning, and to guarantee that promotion and graduation are based solely on achievement rather than time served.

The results of the first minimum competency tests confirmed the worst public fears. Many tests were easy (for example, eighth grade level) and passing scores were low (say, 60% correct) but failure rates were high (20%, 40%, even 60% for some groups of students). If high school students, including graduating seniors, could not pass tests designed for seventh or eighth graders, something must be wrong.

The intense public interest in minimum competency testing has, of course, triggered equally intense professional interest. There is spirited debate about the matter within professional associations today. Some are still considering what to do; others have already taken a stand. Their positions range from flat opposition to qualified support. Here are some sample views:

- National Education Association:

  > State-mandated standards for education should set no more than broad, general curricular guidelines and should not be based on student achievement. Standardized tests that are used to test performance levels as a criterion for high school graduation should be eliminated.

- American Association of School Administrators:

  > AASA recognizes the limitations of currently used intelligence and achievement types of standardized testing procedures. AASA therefore urges its members to point out the strengths and weaknesses of

standardized tests to their constituencies, and what can prevent their misuse, and to eliminate simplistic comparisons of schools on the basis of test results within and among school districts and states.

- National Association of Secondary School Principals:

  Measuring student competency requires two different approaches:

  1. *Use competency tests* to measure functional literacy in reading, writing, and speaking; ability to compute, including decimals and percentages; U.S. history and government.

  2. *Use units or credits* to measure successful completion units or courses equal to a regular course load extending to the first semester of the senior year, and to measure sufficient attendance in programs to gain fully the educational and social benefits of group situations.

Transferable Skills

There are four major reasons for the current interest in identifying and teaching transferable skills. The first is the fact that American adults are changing jobs more rapidly than ever before. And many of those who are not changing jobs plan to do so. The College Board has just published *Forty Million Americans in Career Transition* (1978), a study done in conjunction with *Policy Studies in Education.* The report says that 36% of the population between the ages of 16 and 65—more than forty million Americans—are either in "actual" career transition (e.g., unemployed and looking for work) or in "anticipatory" career transition (e.g., dissatisfied with a current job and considering a new one). The report makes it clear that those in transition are not marginal members of the labor force and may not be currently transferable:

- The majority of in-transition adults are employed full-time at semi-skilled jobs. . . . Those who are currently unemployed are primarily homemakers who withdrew from the work force because of child care or homemaker responsibilities.

- Most adults in transition wish either to change fields or to change the level or status in their present fields. Financial need is a prime motivating force, though the desires to seek more interesting work and to advance professionally are also considerations.

- Most adults anticipate some problems in making these changes. . . . Most (60%) plan to seek additional education in order to gain credentials for entry into new fields or to promote advancement in present fields.

If those adults had already developed transferable skills or were made aware of the transferability of skills they have, perhaps they would be less in need of further formal education in order to make successful career changes.

The report says that one can confidently predict an increase in the "in-transition cohort" of adults because of:

- The continued lowering of sex and race barriers to the movement of qualified workers into jobs.

- The continued national concern about other artificial barriers to employment, including educational and credentials requirements not related to job performance, and employer reluctance to hire persons whose physical or mental handicaps would not affect their productivity.

The second reason for an increased interest in transferable skills is that many graduates of vocational education programs do not find employment in the fields for which they are trained. Their numbers seem to be increasing.

Some have used this fact to attack vocational education. It is an expensive enterprise whose principal justification has been that it prepares people for the work environment and equips them with specific skills. If they do not use their training, why bother?

The attack has been met by the counter-claim that vocational education gives its graduates something far beyond skill training. That "something" is transferable skills. Vocational education is defended as a kind of "general education" that prepares a person for many jobs, not one. The primary benefit of vocational education is said to be an understanding of the work place, a willingness to work, and a readiness to be trained further. These are transferable skills, useful in almost any career or job.

Moreover, vocational educators tend to defend the right of students to enroll for courses in the occupational fields they prefer, even though those jobs may not be available—or, at least, not available locally. They use several arguments to justify this practice: Students might drop out of high school entirely if they cannot take courses they prefer; students may begin with courses in one occupational field but later shift to another with better job prospects; graduates may move to other localities and find jobs to fit their specialized training; every vocational curriculum teaches many transferable skills enabling students to find jobs for which they are not specifically trained.

If transferable skills serve to shield vocational education from the charge that its graduates cannot get the jobs for which they are trained, that shield will be in greater demand as fewer graduates are employed in their fields of training or in related fields.

The third reason for new interest in transferable skills is that the career education movement—which may be thought of as trying to shape the general education curricula into pre-vocational curricula—has been slowly but surely expanding its turf. As a pre-vocational activity, the rising sun of career education has begun to illuminate all of vocational education with its purposes. What are those purposes? According to the nation's prime spokesman for career education, USOE's Kenneth B. Hoyt:

- Career education's main thrust is on providing students with skills and attitudes necessary for *changing with change* in the occupational society, including: (a) basic academic skills; (b) decision-making, job-seeking, job-getting, and job-holding skills; and (c) good work habits and a personally meaningful set of work values.

- Career education seeks to add an emphasis on the importance of *general career skills* gained through the academic disciplines. For example, career education emphasizes the importance of communication skills, critical thinking skills, logical reasoning skills, and competitive skills as ones that are useful in a wide array of occupations.

- Effective implementation of career education should contribute positively to the global goals of (a) health, (b) command of fundamental processes, (c) worthy home membership, (d) civic education, (e) worthy use of leisure time, and (f) ethical character, *as well as* to the global goal of "vocation" (as it is called in the "seven cardinal principles").

These are the transferable skills, according to Hoyt (1978).

The fourth reason for the growing interest in transferable skills is the proliferation of specialized vocational courses to keep pace with increasingly specialized jobs. That proliferation is expensive. How efficient it would be if a set of transferable skills could be identified—skills central to most jobs—and taught in a limited number of courses! That would make it unnecessary to match every expansion in the array of jobs with an expansion in the array of vocational courses.

Holding down the costs of vocational education would be particularly desirable, along with the costs of general education, at a time when enrollment in premium-cost vocational courses is growing, and at a time when expensive-to-educate populations such as the physically or mentally impaired are being guided into vocational courses in increasing numbers. Nothing would make transferable skills more popular than a demonstrated ability to reduce the costs of vocational education.

Learning from the Two

Perhaps the primary reason for persons interested in transferable skills to examine minimum competency testing is that it has pulled ahead of the transferable skills movement: The present in minimum competency testing may be the future in transferable skills.

Four aspects of minimum competency testing seem to have clear implications for transferable skills. Below are some viewpoints about each one.

Proliferating Purposes

Public agencies take on new functions from time to time, either because of external demand from clients or internal ambition of staff. The public usually accepts the expansions—unless the agencies falter in their original purposes. Cities can sponsor concerts so long as they pave the streets. Hospitals can perform research so long as they heal the sick. The military can provide training so long as it wins battles. High schools can sponsor international exchange trips for students so long as they teach American history.

Citizens take a strong interest in public services at times of crises. Otherwise, they don't. Public agencies that fail to meet traditional expectations generate their own crises. Clearly, this is what has happened with minimum competency testing.

The minimum competency movement reflects a public concern that the schools are trying to do more but getting less done. That is, they have broadened their objectives and expanded their curricula but have lost sight of their fundamental obligation: to teach the basic skills.

Aiming vocational education at occupationally transferable skills may be acceptable so long as students learn occupationally specific skills as well. That is, the customary outcome of vocational courses—in the public mind, at least—is salable skills for identifiable jobs. The public expects electricians' courses to teach wiring, not writing; cosmetology courses to teach hairstyling, not communicating; business courses to teach typing, not making friends.

If vocational courses fail to produce their expected results, the citizens are likely to become concerned. When that happens, they are likely to turn to local school administrators and local boards of education. If local officials don't react, the citizens will not stop there. They will go to the state capital. The chances are good that the state legislators will respond.

Legislative Responsiveness

Today's state legislators are understandably sensitive to public opinion about education. They have excellent reasons:

- Education laws affect everybody: 40% of the people are engaged in education and the other 60% help pay for it.
- Money for education makes up a large portion of the state budget.
- Legislators are younger and better educated than in prior years. And they are every bit as competitive and ambitious. Society

changes rapidly; social issues come and go quickly. Legislators must stay alert, spot issues early, take visible positions, and push their ideas fast if they want credit.

- Legislators who want to move from the state capital to Washington need to win statewide recognition. A bill dealing with a widespread public concern can make a legislator famous outside his or her own district.

This means that statewide public concerns are rapidly translated into action by the state legislator and/or by the state board of education. The minimum competency testing movement offers a spectacular example.

If the transferable skills movement generates the kind of public concern about vocational education that declining test scores have bred about general education, legislative action will almost surely follow, shaping the future of the transferable skills movement.

Setting a Minimum

The idea that something is important to learn leads naturally to the idea that it is important to learn a minimum amount of it. So far, the idea of a minimum quantity of transferable skills has not arisen. When it does, experience with minimum competency testing may be useful. For example, the leaders in minimum competency testing have identified three distinct ways to set minimums:

- *Collect judgments by informed adults.* Bring together a representative cross-section of adults—teachers, administrators, parents, recent graduates, employers, taxpayers—and have them deliberate about how high the standards should be.

- *Test the performance of successful adults.* Define minimum "successful" adulthood as being off of welfare and out of prison, give the test to a cross-section of adults, and then make the passing score for students equal to the lowest score made by any successful adult in town.

- *Establish an acceptable failure rate.* Decide how many students you can afford to remediate—or not promote, or not graduate if remediation fails—and set the minimum so that only that many may fail.

Testing the Minimum

The idea that there should be a minimum leads naturally to the idea that the minimum should be measured. That idea has not arisen yet in the case of transferable skills. When it does, the experience of minimum competency testing offers the options outlined later in this book.

WHETHER COMPETENCIES OR SKILLS?

Minimum Competencies

Do you believe that minimum standards should be set for student performance in school? Or do you believe that such standards should not be set? That is the first question.

Alternatives

Minimum standards for student performance could be beneficial. They could be used to decide grade-to-grade promotion or to decide graduation. Or to select students for remediation. Or to examine the curricula and teaching practices for weaknesses. Or to issue different kinds of diplomas. Or to assign students to programs. Or to allocate state financial aid. Or to permit early graduation. Or to restore public confidence in the schools and to inform employers, admissions officers at other schools, and the general public that a school graduate knows something. Those are only some of the uses for minimum standards.

Such standards might be harmful, though. They could send schools backwards to the days when students dropped out if they could not meet the minimum standards. Or they could discredit the schools for what society is doing. Or narrow the curricula to what is testable. Or drive out creative teaching in favor of routine drill and practice. Or force teachers to concentrate on the bottom of the class at the expense of the top. Or cause teachers to oppose mainstreaming the handicapped because of their effect on the test scores of other students. Or increase the amount of testing time and decrease the amount of teaching time. Or label the disadvantaged as incompetent. Or isolate them in remedial classes.

Individual teachers already set standards in their own classrooms, as we know. Those standards differ from teacher to teacher, grade to grade, and subject to subject, of course. And since teachers often consider ability and effort—as well as achievement—they may use different standards from student to student

The question is whether some general standards reaching across all teachers and all grades and all subjects and all students should be set. These would be comprehensive standards for cumulative learning, standards to be applied even-handedly to all students, whatever their pattern of courses. The standards would be expressed in some sort of examination—perhaps a paper-and-pencil test, perhaps a performance examination, perhaps a combination of the two.

It can be argued that only the individual teacher knows the subject and the materials, the students and their families, the schedule of the day, the atmosphere of the school, and the expectations of the community well enough to set standards for a particular group of students—or, better still, for every individual student. No uniform standards set by outsiders can match the standards set by teachers when it comes to realism, fairness, and feasibility. Or so some would say.

It can be argued, on the other hand, that the outsiders who pay for the school, send their children to it, volunteer their time for it, ask the public to vote for it, hire the graduates of it, and

pay the colleges to finish what the high school has commenced--those outsiders ought to set minimum standards for it. Or so some would say.

It doesn't have to be either/or, of course. You could set general standards for the essential knowledge, skills, and attitudes that students learn over many years from many teachers of many subjects. And you could let individual teachers set standards for the particular grades, subjects, courses--and students--they are teaching in a given year. Or you could let the teachers decide promotion from grade to grade and let the outsiders decide graduation from high school. Or you could adopt a sliding scale of standards according to student ability and background.

Or you could not decide at all until you have time to study the possible gains and losses, consider alternatives, understand all points of view, and educate each other. You would need to examine the experience of those states and local school districts that have had competency testing programs underway for several years. A broad survey of public and professional opinion on the minimum competency issues in your community or state should also precede any decision. Furthermore, you would need to determine whether competency tests are valid and reliable before deciding. Setting standards is one thing; meeting them is another. One party may set them, but it will take all parties to meet them. You had better agree before anybody moves ahead.

What will it be?

Transferable Skills

Will you identify occupationally transferable skills or won't you?

Alternatives

There could be advantages. Such skills could be set up as the central target of the vocational curricula. Each vocational course could be examined to see whether it aims some of its guns at the large central target and some at the smaller special targets set up for that particular course. Then all the vocational courses could be examined collectively to see whether they have the combined power to teach all the transferable skills.

Moreover, all the *non-vocational* courses could be examined collectively to see whether they aim some of their guns at the same transferable skills. If so, the *common* purposes of vocational education and non-vocational education would become explicit. Then it would be possible: (a) to *eliminate* the commonality by having some courses *drop* transferable skills, or (b) to *increase* the commonality by having some courses *add* transferable skills. Analyzing both the vocational and non-vocational courses in this way would make it possible to offer students choices of courses—vocational as well as non-vocational—for learning transferable skills. Vocational education has claimed that some students are better able to learn skills and knowledge in a vocational program.

Furthermore, course materials could be inspected to see whether they teach transferable skills. Then, just as with the curricula, you might either drop transferable skills from some materials to avoid needless redundancy, or add transferable skills to all materials to increase desirable repetition.

Daily activities in courses could be inspected to see whether they offer opportunities to practice transferable skills. The purpose would be to find whether the transferable skills designed into the curricula and placed into the materials ever get into the classrooms. If not, the reasons could be sought. They might lie in teacher indifference or teacher incompetence, in supervisory misunderstanding or supervisory neglect, or in defective curricula and poor materials.

Course examinations could be inspected to see whether they question students about transferable skills, and could be revised if they do not. Specifying transferable skills as objectives starts the circle; placing them into instructional materials and classroom practices continues the circle; placing them in the tests completes the circle.

Teacher training courses—both preservice and inservice—could be inspected to see whether teachers are taught how to teach transferable skills. Quite possibly, they are not.

Perhaps most important of all, identifying transferable skills would justify having students graduate from vocational programs even though they fail to find—and perhaps do not even seek—jobs in their specialized fields of vocational training. Students who tend to learn better in a non-academic environment could be safely placed in vocational courses and be expected to acquire transferable skills useful outside the specific occupations at which the courses are aimed. If your education is what you remember after you forget what they taught you in school, the transferable skills could be what students remember after they forget what they were taught in specific vocational courses.

But there could be disadvantages. Setting transferable skills as the central target of the vocational curricula could magnetize all courses around a single powerful purpose, weakening the

allegiance of each to its separate purpose, robbing each of its unique character. Vocational materials, activities, and examinations could become one vague mass, scarcely distinguishable from one course to another.

Vocational courses have long offered specific salable skills as their main product and other outcomes as byproducts—outcomes like familiarity with the work place, productivity, pride in work well done, caution around machinery, and getting along.

Guidance counselors could become confused by vocational courses that offered byproducts as their main products. Students could lose their interest in taking such courses. Coaches would have trouble trying to recruit students by promising to build character rather than teach football. Vocational teachers could lose what may set them apart most clearly from all other teachers: the ability to explain exactly what they are doing. Vocational leaders could forget that one measurable skill in the hands may be worth two unmeasurable attitudes in the heart. Vocational education could lose its hallmark: the ability to set a narrow target and hit it.

And there could be another disadvantage. To the extent that occupationally transferable skills turn out to overlap the skills taught by non-vocational courses, vocational courses could seem superfluous. After all, vocational courses cost more. Why teach the same things at greater cost? A board of education could ask that question. And it could give its own answer: Let the cheaper courses teach them—the non-vocational courses.

Learning from the Two

What can be learned from this twin debate about whether to establish minimum competencies and whether to identify transferable skills? We can learn that the two movements are more different than they are alike.

They have a number of *similarities.* Here are some of them:

- Both deal with learning accumulated over many years, the threads of knowing, feeling, and doing that run through a long series of courses.
- Both use a template of objectives larger than that for a single grade or course; they offer yardsticks for an entire curricula—virtually for an entire education.
- Both converge on words and numbers and on work skills as the core.

But they have a larger number of *dissimilarities.* Here are some of them:

- The first deals with the minimum; the second with the maximum. That is, the first deals with the fewest skills needed to succeed in life; the second with the most skills needed to succeed. The first is concerned with minimum competency for coping with life; the second is concerned with maximum competency for mastering life.
- The first might establish the minimum as the maximum by encouraging students to settle for jumping the low hurdles represented by the tests; the second might establish the maximum as the minimum by encouraging students to acquire every desirable skill needed by the perfect adult.
- The first is a reaction to too little focus in the curricula; it is an attempt to drive educators back to the basics—at the expense of the peripheral, if necessary. The second is a reaction to too much focus in individual courses; it is an attempt to lead educators beyond the tight boundaries of the courses they teach, to concern them with the entire set of curricula.
- The first grows from a concern that the schools will try too much and accomplish too little; the second that they will try too little, not knowing there is more they could attempt.
- The first deals with what the schools can teach alone, largely without help from family, community, and television; the second deals with what the schools cannot teach alone, that need the help of family, community, and television.
- The first could encourage competency-based instruction by specifying objectives and offering tests to measure them; the second could discourage competency-based instruction by broadening objectives beyond the technology of curricular engineering.
- The first might narrow the curricula to what is testable by making the tests the target of all learning; the second might broaden the curricula

to what is not testable by calling for outcomes that cannot be measured in the classroom.

- The first leans toward the skills needed to succeed in later schooling; the second toward the skills needed to succeed in adult life.

The twin debate is about whether to specify more exactly what the schools should accomplish. But because one movement deals with the least that students will be allowed to learn while the other movement deals with the most they will be asked to learn, the arguments tend to run in opposite directions. The reasons for this become clearer in the following section, when we look at what competencies and what skills are being contemplated by the sponsors of the two movements, and examine how they are alike and how they are different.

WHAT COMPETENCIES AND SKILLS?

Minimum Competencies

Do you believe that minimum standards should be set for the school subjects, for the life areas, for the basic skills—or perhaps for all of them? Or do you believe that standards should be set for basic skills *applied* in school subjects or *applied* in life areas?

Alternatives

Begin by distinguishing between school skills and life skills, between the skills it takes to get by in school and the skills it takes to succeed in life, between those needed to succeed later in school and those needed to succeed later in life. There is a difference. And there are different tests for them.

Here is a question from a *school skills* test:

- If Jonn has 70 marbles and gives Jose 13 marbles and gets 26 marbles from Slim and gives 38 marbles to Alice, how many marbles does John have left?

And here is an item from a *life skills* test:

- Balance this checkbook by adding these deposit slips and subtracting these cancelled checks.

Both tasks require arithmetic, but the first one—although it sounds easier—requires the student to abstract the ideas, decide to add and subtract, and arrange the numbers before making the computation, while the second one does not. The first are classic skills of the schoolroom, excellent predictors of success in higher levels of mathematics. In fact, it is more important to set the problem up correctly than to get the right number of marbles—if we are talking about *school skills.* But if we are talking about *life skills,* getting the bank balance right is everything.

Here is another *school skills* question:

- If there are 77 teeth in 2 ¾ inches of backsaw blade, how many teeth are there in 3 1/3 inches?

Here is another *life skills* question:

- To saw very hard metal, should you buy a hacksaw with few teeth or many teeth?

The first will indicate whether the student is ready for the next course in school; the second will indicate whether the student is ready for the shopping center. Both are important. Which

competencies should you require? How about school skills for the college-bound and life skills for the job-bound? Or maybe both for everybody? How about school skills for promotion to the next grade and life skills for graduation from school? Or maybe both at every point in school so that every student must climb a stepladder of learning with its rungs held up on two sides: school skills on one side, life skills on the other side?

Of course, there are *basic skills*—such as reading, writing, and arithmetic—used in both school and life, which is why we call them "basic."

There are really five possibilities. All five are important. But they differ. You could test competency in each (see Figure 4).

1. *The school subjects*--art, business, science, etc.—provide the content to be taught and are the organizers of the school curricula. They are the classifications of knowledge, the specialties of teachers, and the compartments of the school day.

2. *The life areas*—family, work, citizenship, etc.—provide the reason for going to school and are the organizers of adult life. Attention to them keeps school from becoming abstract and detached from life. Focusing on them gives students a reason to study.

3. *The basic skills*—reading, writing, arithmetic, etc.—are required in every school subject and needed in every life area. They are fundamental to clear thinking and essential for clear communication. Master them and you can learn everything else.

4. *The basic skills APPLIED in each school subject*—reading in social studies, writing in industrial arts, arithmetic in science—are the actual daily experiences for the student. The basic skills are tools for learning the school subjects. They should be taught and tested in the context of school subjects, not as something separate.

5. *The basic skills APPLIED in each life area*—reading a contract, writing a business letter, checking a department store bill—are the actual daily experiences of adults. The basic skills are tools for handling everyday life tasks. They should be taught and tested in the context of practical everyday applications, not as something separate.

FIVE POSSIBLE COMPETENCIES

	SCHOOL SUBJECTS				LIFE AREAS				TOTAL
BASIC SKILLS	Art	Business	English	Etc.	Citizenship	Work	Family	Etc.	
Reading									
Writing			(4)				(5)		(3)
Arithmetic									
Etc.									
TOTAL		(1)				(2)			

Figure 4. Five possible competency areas.

The obvious choice is No. 3, basic skills. But wait a minute. Look at the others.

- Unless you choose No. 1, teachers of art, music, science, social studies, foreign languages, driver education, and vocational subjects will have no minimum standards.
- Unless you choose No. 2, teachers can teach about school and not about life.
- Unless you choose No. 4, students may spell a list of words correctly in English class but misspell them in their science laboratory notebooks.
- Unless you choose No. 5, students may learn to add and subtract but be unable to balance their checkbooks.

But you can't select them all because schools do not have time and money for that much testing. So choose very thoughtfully. Remember: What you put into the tests, the administrators will ask the teachers to put into the curricula, the board will hold the administrators responsible for, and the public will regard as what the board values most. You will have to live with the consequences.

Transferable Skills

What are those skills that are transferable not only from occupation to occupation but also from one life area to another? Some are cognitive; some are affective; some are psychomotor. Are you concerned about those skills that involve thinking, those that involve feeling, or those that involve doing? That is, do you feel that the most significant of all transferable skills are those that involve the intellect, the emotions, or body movement? You need to decide whether it is most important to educate the head, the heart, the hand—or some combination.

Alternatives

The National Center's study has developed or located a number of lists of transferable skills. Two of the best lists are those by Kawula and Smith (1975) and by Wiant (1977). Both lists appear in full in the Appendix.

Kawula and Smith, looking for the skills needed to do tasks in many occupations, researched the following four areas: (a) mathematics, (b) communications, (c) interpersonal relations, and (d) reasoning.

Wiant identified occupationally transferable skills, which he was able to place into three categories: (a) intellectual/aptitudinal, (b) interpersonal, and (c) attitudinal.

The four categories used by Kawula and Smith and the three used by Wiant can be compared by using three other familiar categories—cognitive, affective, and psychomotor—as organizers. Table 1 shows this.

Table 1

Comparing Lists of Occupationally Transferable Skills

Domains of Learning	*Kawula and Smith (1975)*	*Wiant (1977)*
COGNITIVE	Communications Mathematics Reasoning	Intellectual/ Aptitudinal
AFFECTIVE	Interpersonal	Interpersonal
PSYCHOMOTOR	Not investigated in this study	Not used as a category

The parallel between the Kawula and Smith list and the Wiant list is evident. Combining the two lists and drawing examples from both to show what the categories mean produced Table 2.

Table 2

Combined List of Occupationally Transferable Skills
with Selected Examples

COGNITIVE	AFFECTIVE	PSYCHOMOTOR
• Communications	• Attitudes toward Work	• Measure distance
• Read and evaluate	• Responsibility	• Draw graphs
• Write technical reports	• Diligence	• Operate calculator
• Speak fluently	• Determination/perseverance	• Use senses
• Listen attentively	• Reliability	
• Mathematics	• Attitudes toward Others	
• Read graphs	• Converses pleasantly	
• Determine equivalents	• Reacts to others	
• Compute ratios	• Manages others	
• Solve word problems	• Gives praise	
• Reasoning	• Attitudes toward Self	
• Develop classifications	• Self-confidence	
• Make decisions	• Self-discipline	
• Outline plans	• Self-actualization	
• Set priorities	• Assertiveness	

Do You Need All Three?

Look at Figure 5 and consider these skills and their usefulness in school and life. You can make persuasive arguments for each type of skill.

POSSIBLE TRANSFERABLE SKILLS

	SCHOOL SUBJECTS				LIFE AREAS			
TRANSFERABLE SKILLS	Art	Business	English	Etc.	Citizen-ship	Work	Family	Etc.
Cognitive								
Affective								
Psychomotor								

Figure 5. Possible uses of transferable skills.

Cognitive skills are needed for every school subject and for every life area, without exception. Communications, mathematics, and reasoning are skills everyone needs to succeed in school and in life. No skills are more transferable, none more valuable.

Affective skills are equally important for getting along in school and in life. You need healthy attitudes toward yourself, toward others, and toward work if you are to be stable, understanding, and motivated. Positive attitudes are needed to succeed in school as well as in most occupations, especially those that deal with people, and to be a family member and a good citizen. Remember: More people lose their jobs because of poor interpersonal relations than because they lack the cognitive and psychomotor skills needed to do the work.

Psychomotor skills are needed for many school subjects and in many life areas. These skills range from sensory perception to simple actions to complex movements requiring considerable skill. Such skills are critical to school success in art, science, and physical education and are essential to success in many occupatons from mechanics to cabinetmakers to sculptors to surgeons.

Unless you choose *cognitive skills* you may ignore the most useful of all transferable skills: communicating with others. But if you don't choose *affective skills,* you may produce students and workers who aren't emotionally healthy and can't put their cognitive and psychomotor skills to the best use. And yet, unless you choose *psychomotor skills,* you may overlook the manipulative skills that are basic to performing many school assignments and daily activities successfully.

But choosing them all may overload your curricula as well as your testing program. So choose carefully.

Learning from the Two

What do most minimum competency tests test? Most states and localities use them to test the basic skills—reading, writing, and arithmetic—to govern promotion, and to govern graduation. The tests sometimes include school subjects, such as science, but more often include life areas, such as citizenship and work. But the basics dominate.

What would a list of occupationally transferable skills add to that list? Reasoning, for one thing. Higher level cognitive skills, like the ability to develop classifications or make decisions, rarely appear in minimum competency tests.

A list of occupationally transferable skills would add some affective and psychomotor skills, as well. Positive attitudes and good manual skills are essential for transferability from occupation to occupation as well as for successful citizenship and family life. And they are extremely useful in school as well. But current minimum competency tests pass them by in favor of the easier-to-measure lower level cognitive skills.

In short, good lists of transferable skills can broaden the current narrow lists of minimum competencies by adding reasoning, good attitudes, and selected manual skills.

The best way to consider the alternatives in both movements is to select several criteria for judging which minimum competencies and transferable skills to choose. Take these criteria as examples: *usefulness, feasibility,* and *measurability.*

Usefulness. One way to rate minimum competencies and transferable skills is to think about their relative usefulness in multiple settings: They could be school settings or they could be life settings. What kinds of competencies and skills can be used in many school subjects—perhaps in all school subjects? What kinds can be used in many areas of life—perhaps in all areas of life?

Feasibility. It is more feasible to teach some competencies and skills than others. Madaus and Airasian (1977) say this:

> While most educators would agree that basic cognitive skills and processes do fall within the domain of teachable behaviors, there appears to be less certainty that such "higher level skills" as analysis, synthesis, and evaluation are capable of being successfully taught to all pupils. . . . It is not at all clear how pupils acquire these behaviors or what types of instructional materials are most appropriate. . . . Teaching them, given the present state of knowledge, is as much an art as it is a science. (p. 81)

Madaus and Airasian say this about teaching affective skills:

> Teaching the affective aspects of social responsibility, good citizenship, self-concept, and job preparedness to all pupils in a school calls for knowledge and techniques simply unavailable given the current technology of instructional and curricular research . . . (pp. 81-82)

In short, the fact that attitudes and reasoning are important in many school and life settings does not mean that they can be taught. Thus, you should add feasibility to usefulness in choosing which competencies and skills to teach.

Measurability. Madaus and Airasian say that while interest in reading, for example, might be a significant attitude, we might not be able to measure it:

> For example, a common competency that might be considered crucial for mastery in the area of becoming a "lifelong learner" is that a pupil develop an interest in reading. Yet, relative to our sophistication in evaluating cognitive outcomes of learning, our skill at evaluating this type of competency is small. (p. 87)

In short, even if a competency or skill is valuable and even if it can be taught—both of which are true, for example, of interest in reading—you should think about its measurability before selecting it to teach.

Thinking Systematically

You could set up a table like those shown earlier and use it to make your thinking systematic. Do this:

- List the school subjects in the first set of columns. Include both "academic" and "nonacademic" subjects. Agriculture, art, business, distributive education, driver education, English, foreign languages, home economics, industrial arts, mathematics, music, science, social studies, trade and industrial education—the whole list.

- List the life areas in the second set of columns. Include citizenship, aesthetics, ethics, family, health, and work. These are the life areas that have been singled out by philosophers and curriculum developers for thousands of years as most significant, and thus as the ones to keep in mind when designing school programs. You can, of course, add others to your list.

- List minimum competencies and transferable skills on the rows. Several lists of examples of transferable skills are located in the Appendix. These will help you to make your selections. Include the cognitive, affective, and psychomotor areas. Include communications, mathematics, and reasoning skills; include attitudes toward work, toward others, and toward self; include sensory perception, simple actions, and complex movements.

- Now, place checkmarks in the cells to indicate where the minimum competencies and transferable skills listed on the rows can be used in the school subjects and/or in the life areas. Next, circle the checkmarks showing those that are feasible to teach. Finally, put a second circle around those checkmarks showing competencies and skills that are measurable. Counting the double-circled checkmarks in each row will indicate which minimum competencies and transferable skills are most worth teaching, can be taught, and can be measured. Refer to the section entitled *How Measured* for our thoughts on alternative choices of measurement techniques. You should note, of course, whether they register as being important in the school subjects, in the life areas, or both.

- You can sophisticate the exercise by placing a weighting in each column to show the relative importance of each school subject and/or each life area.

Multiplying your double-circled checkmarks by those weightings will produce a more sophisticated measure of the importance of each minimum competency and transferable skill.

- The exercise can be further sophisticated if you validate the importance of the school subjects and life areas by obtaining ratings from representatives in the community. Such ratings would be helpful in determining how much weight to place on each.

The National Center is currently engaged in validating the importance and utility of functional competencies in various life areas.

HOW MANY?

Minimum Competencies

Will you set one minimum for all students or will you consider ability, special talents, family background, or other factors we know affect the *learning of students?* Will you set one minimum for all schools or will you consider community characteristics, faculty composition, school spending, or other factors we know affect the *quality of schools?*

Alternatives

A single standard for students would establish a uniform level of acceptable performance for all students, regardless of ability, talent, or background. It would stand as a working definition of minimum competency and would establish the body of knowledge, skills, and attitudes needed by every person to succeed in school or in later life. It would represent a universal expectation to be met by all students—or by all schools—regardless of circumstance.

In contrast, a set of standards graduated according to ability or family background, for example, would expect less of those who can do less and would expect more of those who can do more. Similarly, a set of standards differentiated according to special talents or special interests, for example, would take into account different "achievement profiles" for individual students and would allow them to demonstrate an acceptable "pattern of competency" rather than requiring all of them to reach the identical point on the identical standard.

In choosing between a single standard and multiple standards, you need to decide whether the idea of "minimum competency" can be reconciled with the idea of graduated standards or differentiated standards. If a minimum is a real minimum, perhaps no student should be allowed to fall below it or required to rise above it because of ability. You also have to consider what measure of ability or family background you might use to set graduated expectations and what measure of special talents or special interests you might use to set differentiated expectations.

Think about student ability as one example. A single standard can be too hard for a dull student yet be too easy for a bright student: impossible for the dull and thus not motivating; trivial for the bright and thus not motivating; objectionable to parents and teachers of the dull; laughable to parents and teachers of the bright—and thus acceptable to none of them.

Using a graduated standard on a sliding scale according to ability will solve all those problems. And it will instantly create others. A graduated standard expects less of some students. "Expect less, get less" is a formula most parents and teachers don't like. A graduated standard will grant a diploma to a dull but energetic student who gets 40 points on the exam and will refuse a diploma to a bright but lazy student who gets 60 points on the exam. Moreover, current ability tests may not give fair and accurate measures and thus may not be able to guide expected achievement.

Is there a compromise with the best of both worlds? Yes, but it also has the worst of both worlds. You can use a low minimum for every student regardless of ability, and a graduated minimum for students of, say, above-average ability. This does not expect the impossible from anyone, but it does expect more from students who clearly can do more. The old problems—such as how to measure ability—are still there, of course.

Or consider family background—well-established as an influence on student learning. You may feel that a single standard ignoring family background would be grossly unfair. Or you may feel that graduated standards considering family background would be grossly unfair because they would expect the children of the rich and the poor to leave school as far apart as when they came in.

The same thing is true about special talents or special interests in art, sports, music, history, automobile repair, or writing. You may feel that a single standard ignoring them would be unfair by expecting athletes to write or writers to play ball equally well. Or you may feel that differentiated standards would be unfair by demanding more just because a student has the potential—not because more is needed for later success in school or life.

The identical principles apply to setting single standards versus graduated standards for schools. A single standard may demand nothing of a wealthy suburban school and the impossible of a poor ghetto school. But a graduated standard may label poor schools as places without hope or give them an excuse for not improving, neither of which is good for students, teachers, administrators, or parents.

Perhaps you should set a separate standard for each student, considering his/her ability, special talents, and background—a standard negotiated among student, teacher, and parent. And perhaps the same should be done for each school—a separate standard negotiated among board, administration, and faculty. Admittedly, the logistics would be formidable. But, the process of negotiating standards for achievement might improve mutual understanding, mutual purposes, and—most importantly—the likelihood that the standard will be met.

You may want to arrange several minimums into a graduated sequence to check student progress from grade to grade. Some places are doing that.

Finally, you may want to set a rough, general minimum immediately and then refine it into specifics over the years ahead.

Transferable Skills

Will you establish one set of transferable skills cutting across *all* occupational clusters, or will you establish a distinct set for *each* separate occupational cluster, or will you establish differentiated standards for various *groups* of occupational clusters?

The National Center has been engaged thus far in identifying skills common to all occupational clusters, but it is easy to imagine cluster-specific skills. There would be some advantages to listing them. That alternative, among others, is discussed below.

Alternatives

Each of the choices below has certain clear advantages. You need to consider each choice before deciding.

A single set of skills for all occupational clusters. There would be clear advantages in setting forth one single list of skills that are transferable across the entire universe of jobs, no matter what occupational cluster they are in. Here are some of those advantages:

- Every vocational course and every vocational class would have a common central purpose—binding them all together into a coherent body of studies leading to an invaluable final goal.
- There would be one single template for examining all vocational courses to see if they were contributing to the common core.
- Every student would have maximum exposure to the transferable skills, meeting and practicing them in every single vocational course.
- Students who shifted their studies from one occupational cluster to another would find themselves already equipped with some of the required skills, and would be off to a running start.
- Adult workers would find it exceedingly easy to transfer from a job in one occupational cluster to a job in another.

A distinct set of skills for each occupational cluster. There would be other advantages in setting forth a distinct—perhaps unique—list of transferable skills for each separate cluster of occupations. Here are some of those advantages:

- The lists of skills could have a tight fit to each cluster, taking into account the current and probable future structure of jobs in each cluster and the skills needed for lateral transfer as well as vertical promotion in that cluster.
- The cluster of vocational courses preparing students for jobs in each cluster could form a coherent body of studies with a common central purpose.

- There would be one template for examining all vocational courses within each cluster to make sure they were contributing to the central goal.

- Students would get maximum exposure to and practice in using the distinctive transferable skills needed for that cluster of occupations.

- Adult workers would be especially well prepared for transfer between jobs within each cluster.

Differentiated standards for groups of occupational clusters. There would be still other advantages to setting forth lists of transferable skills for major groups of occupational clusters. The advantages of doing this would be, of course, a compromise between the competing advantages of a single set for all and a distinct set for each. Here are some of them:

- There would be several lists of transferable skills, with no list containing universal skills but every list containing widely usable skills.

- Vocational courses preparing students for jobs in a group of occupational clusters would have a clear common purpose.

- Students would get considerable exposure to and repeated practice in using the transferable skills needed for a large related group of occupations.

- Students who shifted their studies between occupational clusters within one group would not have to begin at the beginning in learning skills for the new occupation.

- Adult workers would be able to move easily among jobs across a wide span of occupations.

Graduated skills according to levels of jobs. One other possibility would be to set forth different lists of transferable skills according to level of job responsibility within occupational clusters. The list of transferable skills by Kawula and Smith (1975) in the Appendix offers an excellent example of such a division. Kawula and Smith distinguish between transferable skills needed in supervisory jobs and those needed in non-supervisory jobs. It is possible to imagine lists with more than two categories. For example, the lists of skills for a given occupational cluster might distinguish between those needed by production workers, production supervisors, middle managers, and executives.

Learning from the Two

What can the minimum competency testing movement teach the transferable skills movement about how many minimums to set, and vice versa? Does each have features relevant to the other?

Learning from Minimum Competency Testing

Current studies of transferable skills rate them for their usefulness rather than for whether they can be learned by every student. The studies treat the skills as having implications for curriculum and instruction rather than as guides for testing and evaluation. Sooner or later, the transferable skills movement will need to deal with the appraisal of those skills. When it does, the minimum competency movement can offer some lessons about how many minimums.

In any consideration of minimum competency testing, the topic of student ability immediately surfaces. Should the standard be the same for every student or should it vary? Should the variation be based on intellectual ability, student interests, special talents, family background, native language, economic status, disability, or what? Should the variation be for an entire group—the disadvantaged, the handicapped, the bilingual—or tailored to each individual student?

The same debate will arise if you decide to set standards for transferable skills. You can anticipate the following effects of choosing the various alternatives:

A single standard for all students.

- Any single standard will have to be set quite low since it will have to be reachable by all students. It will offer no guides to curriculum design, instructional materials, and teaching practices, except for minimum levels of learning. It will be relatively inexpensive to test, requiring equivalent multiple "forms" of a single examination. The total costs of remediation will be low inasmuch as most students will meet the low standards without remediation.

- A single standard guarantees that all high school diplomas or certificates of completion for specific vocational curricula will have a single minimum meaning. Employers and others will find the diploma or certificate easy to interpret—at least at the minimum.

A distinct standard for each student.

- Each standard would be a close fit for each individual student, specifying how well that particular student should be expected to learn the transferable skills.

- Each standard would be fair, inasmuch as it would consider the abilities and disabilities of each student. The standard could be adjusted for intelligence, past achievement, sex, native language, or other factors you think merit special attention.

Differentiated standards for groups of students.

- A possible compromise between a single standard for all and a distinct standard for each would be standards differentiated for groups of students having common characteristics. This would avoid the limitations of a single standard (such as being too low for many students) and the limitaitons of a distinct standard for each student (such as administrative complexity).

Learning from Transferable Skills

Current practice in minimum competency testing usually assumes a single destination in life or a single life pattern for all. Think of it as a minimum life—which the school ought to guarantee for all. This guaranteed minimum life requires guaranteed minimum skills to be supplied by the school. There are no minimum competency tests for Life Style A versus Life Style B. Sooner or later, the competency movement will need to deal with alternative life patterns. When it does, the transferable skills movement will have some lessons to teach.

Any consideration of occupationally transferable skills immediately surfaces the topic of occupational destination—or, at the least, career route. Should the student be prepared for several jobs, many jobs, or all jobs?

To put it another way, since transferable does not mean universal, what are the limits of transferability? That is, to be called transferable, should a skill be useful in every job, many jobs, or several jobs?

If you decide to set more than one minimum competency in school skills or life skills, the transferable skills movement can offer these lessons about how many minimums:

A single set of skills for all occupational clusters.

- Teachers of every course in the school curricula could adopt the common skills as their objectives—thereby demonstrating the centrality of what they are teaching, justifying its place in the school curricula, and strengthening their claim to a fair share of the tax dollar.

- Every student, irrespective of his or her choice of courses, would have many chances to learn and practice the common set of skills.

A distinct set of skills for each occupational cluster.

- A rather extensive list of skills could be chosen for their high transferability within a limited area of life.

- Courses designed to prepare students for that life area could share the entire list of skills as a large common core of learning objectives.

Differentiated standards for groups of occupational clusters.

- A compromise between one set of skills for all occupational clusters and a distinct set of skills for each cluster would be differentiated standards for related groups of occupational clusters. This would avoid some of the problems of a single set (such as the very limited number of truly universal skills) and some of the problems of a distinct set (such as too little commonality of purpose across different courses).

HOW MEASURED?

Minimum Competencies

How will you measure the competencies? There are several different kinds of tests you can use, but they may give you different results that can be put to different uses. Will you select one testing technique or several?

Alternatives

The possibilities range from testing with paper and pencil to testing through actual experience. There are some points in between:

1	2	3	4
Paper and Pencil	**School Products and Performances**	**Simulated Performance Situations**	**Actual Performance Situations**

So you have four choices. You could test through:

1. *Paper-and-pencil tests* in the classroom—what we usually think of as "tests." Most of these measure a narrow band of knowledge or skill and are far removed from performance required in real life. Thus, the results may not foreshadow later success in school and life, where success depends on attitudes, values, personal warmth, leadership, creativity, physical strength, and other things a person cannot show with a piece of paper and a pencil. But these tests are quick, easy, cheap, and available.

2. *School products and performances.* These are essays, paintings, experiments, clarinet solos, brake jobs, speeches, touchdowns—things students make or do while studying in school. This is better than using paper-and-pencil tests because *concrete* accomplishments are used to test knowledge and skills rather than *indicators* of accomplishments in the form of test items. But it takes more time and money to score the results. This is not as good as simulated performance testing, because the student usually has had help and because the test pressures are missing. Still, it is simpler than arranging special simulations.

3. *Simulated performance* situations set up in the schoolhouse to resemble those in later school or on the job. This is good testing. The student demonstrates minimum competency in artificial situations like the real ones to come. Compared to testing in actual performance situations, this is cheaper, takes less time, and gives quicker results to help school and student correct failures. But it isn't perfect: (a) The situations are not real and the results may not match actual performance later, (b) there are few good tests available, and (c) it takes more time and money than using paper and pencil.

4. *Actual performance* situations in later school or on the job. This is ideal "testing." The student demonstrates minimum competency by entering and graduating from the next level of schooling or getting a job and keeping it. Judging actual performance in such situations measures the lasting, important effects of schooling, and takes no time away from teaching. The trouble is that such "testing" is expensive, it takes years, and the results come back too late to help either the school or the student.

To summarize, as you move away from actual performance situations in life and move toward paper-and-pencil performance, testing becomes easier and cheaper, but the test results become less likely to predict later success. Thus a student can fail on a minimum competency paper-and-pencil test, but pass in the actual performance situations of real life. Remember this later when we talk about using results to withhold diplomas.

Now, you might want to do this: Use simulated performance situations to test *life skills* and use paper and pencil to test *school skills.* Here's why. Taking a paper-and-pencil test is, in fact, an actual performance situation in school. Indeed, you could call it the most important school skill of all. In that sense, paper-and-pencil tests are not artificially removed from school, but only from life. Since a student who does well on a paper-and-pencil test today should also do well in school tomorrow, you may choose to test school skills accordingly.

There is another decision you have to make: Will you develop your own tests or use what is available? As you move toward actual performance situations and as you decide to test life skills, you will find fewer and fewer tests to choose from, and vice versa. For instance, you will find many paper-and-pencil tests of solving science problems, an important school skill, but you will find few simulated performance tests of ethical behavior, an important life skill.

Remember: Different kinds of tests may give you quite different results. So decide carefully.

Transferable Skills

How will you measure transferable skills? There are several different kinds of tests you can use. Some are probably better for measuring certain skills, others for measuring other skills. What will you choose?

Alternatives

The arguments for using paper-and-pencil tests, judging school products and performances, arranging simulated performance situations, and examining the results of actual performance situations were explained in the previous section. The advantages and disadvantages of each differ somewhat according to whether you are testing thinking, feeling, or doing.

Cognitive Skills

While you can use any method of testing for measuring any of the transferable cognitive skills, some methods have more to say for themselves than others.

Communications. Schools ordinarily use paper-and-pencil tests to measure reading (vocabulary, comprehension, speed) and writing (grammar, spelling, punctuation). One good reason is that excellent paper-and-pencil tests are available and schools don't need to develop new ones on their own. But you may prefer to have teachers judge the reading and writing students do while carrying out regular school assignments. That kind of "testing" by having teachers observe and judge lets students read and write in natural conditions and can be a more valid predictor of how they will communicate in later life.

Schools ordinarily use student performances in school to evaluate listening and speaking. But, on occasion, they set up simulated situations and ask students to listen or speak as if the situations were real. However, student grades for performance in speaking and listening are usually incorporated into the total grades for the school subjects. Only English, speech, drama, and foreign language teachers assign separate grades for speaking. Even they rarely assign separate grades for listening.

Mathematics. Concepts and computation are typically tested with paper and pencil. The same is true of applications, but you may want to test applications through school performances (in science laboratories, for example) or through performances in simulated situations resembling those requiring mathematics in later life (in family budgeting, for example).

Reasoning. Although there are tests of reasoning, few schools use them as a part of their standard testing programs. And, there are few questions requiring reasoning on the typical teacher-made test. Reasoning can be tested particularly well through simulations, which can offer some of the complexity of real life, including the interpersonal relationships that often cause problems in real life.

Affective Skills

Student attitudes are always judged but seldom measured. They almost always influence the grades students get in school, but they are rarely graded separately after students leave the elementary

grades. Nevertheless, it can be done if you think it is important. Keep cultural variations in mind when making judgments about the value of attitudes.

Attitudes toward work. You can make the best measurement of attitudes toward work by observing students performing actual work. You have many chances to do that since more than half of all high school students have paid jobs at some point during high school. The adults who pay them can be asked to judge how responsible, how diligent, and how reliable they are. As career education expands, more and more high school students will get the same experience—sometimes for pay, sometimes not. For those who do not work, you may want to simulate working conditions and judge the way students feel about working as they perform in those situations.

Attitudes toward others. Both teachers and students judge—if not measure—student attitudes toward others. Teachers let those judgments influence the grades they give; students let them influence whom they choose as their friends and whom they elect as their leaders. You may want those judgments recorded systematically. If so, you can choose between teacher ratings and peer ratings (using sociometric devices). Or, you may want to examine student participation in extracurricular activities, including election to leadership positions, instead.

Attitudes toward self. Schools virtually never make a separate measurement of student attitudes toward themselves, although such attitudes undoubtedly have a powerful effect on student performance both in curricular and extracurricular activities. You may feel that the most valid measure is to judge actual performance in out-of-school situations, where the full range of personal and social forces is available to shape behavior, and where student attitudes toward themselves are most likely to have their full effect on performance. An alternative, of course, is to use psychological tests individually administered while students are still in school.

Psychomotor Skills

Measuring movement requires performance testing of some kind. The testing can be done in the normal course of school activities, special simulations can be arranged, or performance in later life can be judged.

Sensory perception. Although you can find formal tests of such skills as seeing and hearing, most schools rely on informal teacher judgment to decide whether students are using their senses in performing tasks that require looking, listening, and touching. You can make those judgments more systematic by asking teachers to use rating scales to judge sensory perception in contrived performance situations that require students to use their senses to succeed.

Simple actions. Every school subject requires students to perform some simple physical actions—arranging, measuring, drawing, stirring, and so on. As with sensory perception, schools ordinarily depend on teacher judgment to evaluate these simple psychomotor skills. And as with sensory perception, you can get better, more reliable measurement by having teachers use rating scales to evaluate those simple actions in simulated performance situations.

Complex movements. Many school subjects—agriculture, carpentry, business, dance, driver education, home economics, music, and science—require students to make complex movements. Sometimes teachers judge those movements during the normal course of school activities; sometimes they set up special performance testing situations. Sometimes teachers use informal means of selecting what to observe and informal criteria for judging it; occasionally, they use formal lists of movements to be judged and formal lists of criteria for judging them. You can make those judgments fairer, more reliable, and more valid by: (a) making both the topics and the criteria explicit;

(b) setting up special performance situations and standardizing instructions, equipment, and time; and (c) using two or three judges rather than one. A distinct alternative is to wait until students meet actual performance situations in later school or later life, and having others (college professors, employers) judge student skill in using whatever complex movements are required.

Learning from the Two

How do most minimum competency tests test? They use paper-and-pencil tests in almost all cases. There is an occasional exception, as when a state or locality asks out-of-school adults, such as employers, to certify that students have certain job skills. But if you are going to take a minimum competency test, take a pencil along with you and you will need little else.

Just as good lists of occupationally transferable skills can enrich current lists of minimum competencies, the best techniques for testing those transferable skills can broaden the current collection of competency measuring devices. This is because the additional transferable skills, such as reasoning, positive attitudes, and physical movement, cannot be measured adequately with paper and pencil, and because performance tests have been invented to assess them.

Actual performance testing in real situations is commonplace in the skilled occupations (carpentry, auto mechanics, secretarial work) and in the professions (medicine, engineering, law, teaching). Such testing offers the decided advantage of realism (which tends to increase validity) and of independent judgment (which eliminates teacher bias).

Simulated performance testing in contrived situations is commonplace in vocational education. That method of testing is especially good for evaluating transferable skills, such as reasoning, attitudes, and psychomotor skills—all of which are needed for occupational success. Compared to actual performance testing, simulated performance testing offers decided advantages: It is more convenient, faster, and cheaper—not only in test administration but also in test scoring and in getting the results.

Four Things to Remember

You need to keep four things in mind when deciding how to measure minimum competencies and transferable skills.

1. *They may already be measured and the results recorded separately* in the current school grading and reporting system. In that case, you need consider only whether the measurement technique is satisfactory.

2. *They may already be measured and the results incorporated with other records* in the current school grading and reporting system. For example, student performance in listening—a valuable transferable skill—is usually incorporated into the total grade for each school subject. In that case, you need to consider whether you want them measured, recorded, and reported separately as important transferable skills. If so, you will have to make special arrangements.

3. *They may not be measured at present.* You may find that the school does not measure certain important minimum competencies and transferable skills at all. In that case, you need to consider how you want them measured, recorded, and reported, and you need to make special arrangements for getting all of that done.

4. *They may be unmeasurable.* It may be that certain aspects of thought, emotion, and movement are important minimum competencies and/or important transferable skills, but they cannot be measured. The reason may be that testing technology does not allow

it, ethical considerations do not permit it, or time and cost rule it out. In that case, you will have to forego measurement until conditions change.

Thinking Systematically

You can use a table like Figure 6 to guide your thinking.

ALTERNATIVES FOR MEASUREMENT

	WAYS TO MEASURE			
COMPETENCIES AND SKILLS	Paper-and-Pencil Tests	School Products and Performances	Simulated Performances	Actual Performances
COGNITIVE				
Communications				
Reading				
Writing				
Listening				
Speaking				
Mathematics				
Reasoning				
AFFECTIVE				
Attitudes toward Work				
Attitudes toward Others				
Attitudes toward Self				
PSYCHOMOTOR				
Sensory Perception				
Simple Actions				
Complex Movements				

Figure 6. Chart for guiding measurement choices in minimum competencies and transferable skills.

You can use these six criteria to decide how to measure each of the competencies and skills: availability, convenience, reliability, validity, speed, and cost.

Availability. If a paper-and-pencil test or an interview test or a work sample ranking procedure or a peer rating scale or an unobtrusive measuring device is not available, you have one good reason

not to bother evaluating the competency or skill. Of course, you can make your own if you know how and can afford it.

Convenience. Are the available tests convenient and simple to use, or can you design one that is? Tests that require unusual spaces, equipment, and materials, or that demand elaborate advance preparation, fail to meet this criterion.

Reliability. If the available tests do not measure the same way every time, the results can be unfair and misleading. If you have to develop your own, remember that reliability can usually be increased by making the tests longer, training the judges better, making the scoring guide more explicit, and controlling the testing conditions more carefully.

Validity. Does the test measure what it is supposed to measure? Taking direct measurements of performance in realistic circumstances usually gives more valid results than taking indirect measurements of performance in unrealistic settings. If the only available tests of skill in musical performance use paper and pencil, for example, don't bother to make the measurement.

Speed. Consider how long it takes to give the test, score it, and report the results. Other things being equal, the cheaper the better.

WHEN MEASURED?

Minimum Competencies

Competencies can be measured *during school* or *at the end of school* or *both,* or some can be measured during school and others at the end of school. What will you do?

Alternatives

During school. Competency tests can be given at every grade K-12 or at selected grades such as 3, 6, 9, and 12. That is, they can be scheduled to parallel the content and sequence of the school curricula either year by year or at major terminal points such as the end of the primary grades, the intermediate grades, the junior high grades, and the senior high grades. These tests can be matched to the curricula—that is, to the specific subject content—of the grades selected for testing.

Test during school if you believe:

- You want to measure competency to move up from grade to grade in school.
- Students and their parents deserve a distant early warning if there is trouble ahead. A legal basis can be established for non-promotion or non-graduation in later years, because parents and students have been warned early—and repeatedly, if necessary—that progress was not satisfactory.
- A series of competency tests can be arranged in a graduated sequence of difficulty to motivate students to do better year after year.
- Students who cannot pass the tests can be scheduled for early remediation or special programs before they fall further behind.
- The results can be used to modify the school curricula year by year because weak spots can be precisely located and corrected.
- Administrators need to make changes any time students do not progress: changes in curricula, course selection, or faculty inservice training. Only formal competency tests will alert administrators to unsatisfactory learning early enough to do something about it.

At the end of school. A competency test can be given in the final year of high school. The same test (or equivalent "forms" of the test) can also be given a year or two earlier—in grades 10 and 11, for example—to allow time for correcting deficiencies so that students can pass the test in grade 12. This test can be a comprehensive final examination measuring the cumulative effect of all the years of schooling in order to determine whether the student is able to move on to further schooling, a job, and/or home and family responsibilities.

Test at the end of school if you believe:

- Students learn at different rates. All students—including slow learners—deserve enough time to reach the minimum and should not be labeled as "incompetent" by being tested prematurely.
- Teacher-made tests and daily classroom contact will identify students who are not making progress during school. Formal competency testing is not needed.
- The test results should report the kinds of knowledge, skills, and attitudes with which employers are directly concerned—the entry-level skills needed to begin a job well and go on to learn other jobs later.
- Students will be old enough by the end of school to be tested on life skills used by adults.
- It will cost far less to place one final testing hurdle at the end of a student's school career than to place intermediate hurdles throughout.
- It will cost far less to remediate the few students who do not reach the minimum by the end of school than to remediate the many who falter along the way but who will catch up on their own, given enough time.

Now, you could measure:

- *School skills during school* to decide promotion from grade to grade.
- *Life skills at the end of school* to determine graduation.

Or you could measure *both at the end* if you feel that:

- Even the college-bound should be competent for life (many college students have already started working).
- Even the job-bound should be competent for further schooling (adults are returning to school in ever-increasing numbers).

Transferable Skills

Transferable skills can be measured *during school* or at the *end of school* or both, or some can be measured during school and others at the end of school. Moreover, some can be measured at the end of a single course or at the end of a series of courses. What will you do?

Alternatives

The choice of when to measure transferable skills depends on the choice of when to teach transferable skills. This in turn depends chiefly on whether transferable skills are taught in the general academic curricula or in the specialized vocational curricula or both. It also depends on whether transferable skills are taught as an embedded but identifiable part of each separate course, are intended to be the cumulative outcome of a series of courses, or are taught as the target of one or more specialized courses designed explicitly to teach transferable skills. In short, it is a curricular question with a testing answer. The testing alternatives are shown in Figure 7.

POSSIBLE TIMES FOR TESTING TRANSFERABLE SKILLS

	General Academic Curricula				Vocational Curricula			
	All Courses		Specialized Courses		All Courses		Specialized Courses	
DURING SCHOOL	End of Each Course	End of Series of Courses	End of Each Course	End of Series of Courses	End of Each Course	End of Series of Courses	End of Each Course	End of Series of Courses
	END OF SCHOOL							

Figure 7. Testing alternatives for transferable skills.

During School

There are excellent reasons for testing transferable skills annually or periodically—perhaps every three years—throughout grades K-12. Some of them were listed earlier as reasons for testing minimum competencies during school. Others appear below.

Testing in the general academic curriculum. The National Center has identified an extremely broad set of transferable skills—cognitive, affective, and psychomotor. Many of those skills are the traditional subject matter of the general academic curricula. Inasmuch as the curricula begin in kindergarten and continue throughout the final year of high school, it can be argued that testing for transferable skills should follow the same pattern.

Testing in all academic courses or in specialized academic courses. Given the scope of the transferable skills, there is hardly a course in the general academic curricula that does not contribute to teaching them. English courses teach reading; mathematics courses teach fractions; social studies and science courses teach decision making; art and music courses teach sensory perception; physical education courses teach psychomotor skills; health courses teach attitudes toward self. Since all the general academic courses teach transferable skills, it can be argued that they should be tested in *all academic courses.*

But curricula could be designed so that students were periodically scheduled into *specialized academic courses* teaching them to apply skills in diverse situations to illustrate their transferability and to give students practice in using them in a variety of circumstances.

Testing in the vocational curricula. It could be argued that while the transferable skills identified by the National Center are extremely broad, encompassing subject matter from the general academic curricula, they are not likely to be taught and learned for transferability in academic courses themselves. Instead, it can be argued that only vocational courses provide the real or realistic environments in which students can actually learn to use those skills in various practical settings, thereby experiencing their actual transferability from one situation to another. The logical evolution of such an argument is that transferable skills ought to be taught in the vocational curricula.

Testing in all vocational courses or in specialized vocational courses. If every vocational course is responsible either for teaching certain transferable skills or for arranging for students to practice those skills under a variety of conditions, it follows that the skills should be tested as a part of *all vocational courses.*

But if vocational curriculum developers decide that transferability of skills is not automatic, cannot be acquired by taking regular vocational courses, and must be taught in specialized courses designed for that purpose, it follows that testing for such skills should be a part of such *specialized vocational courses.*

Testing after each course or after a series of courses. If *each separate course*—academic or vocational—is expected to teach particular transferable skills, those specific skills should be tested at the end of each course. Otherwise you would not know whether each course was doing its share of the work and you would not be able to pinpoint and correct weaknesses within courses.

On the other hand, if a *series of courses*—academic or vocational—is expected to have a cumulative effect, then transferable skills should be tested at the end of the series rather than course by course. Imagine, for example, a series of studio art courses, no one of which alone is intended to heighten sensory perception, but the series of which is expected to do exactly that. The logical time to test for the transferable skills would be at the end of the series, using one comprehensive test.

The question is whether each course teaches unique transferable skills or whether a series of courses teaches a common set of transferable skills. If the first, test at the end of each course. If the second, test at the end of the series.

At the End of School

The best place to test for transferable skills is at the end of high school—if you believe that it takes students many years to learn transferable skills, that both general academic education and specific vocational training are necessary to learn transferable skills, and that such skills are the cumulative result of diverse educational experiences and cannot be the engineered result of a single course or a series of courses. In that case, you would want to wait until the end of high school and give a comprehensive test of transferable skills.

There are other reasons to test at the end of school as well, including all those listed in the previous section on testing minimum competencies.

Both during School and at the End of School

You could measure *narrow-gauge* transferable skills—such as the ability to compute ratios—*during school*, but wait to measure *broad-gauge* transferable skills—such as setting priorities or managing other people—until the *end of school*, in the belief that narrow skills can be taught in a single course while broad skills can only be taught through the complete curricula. This would be one way to accommodate to the fact that the transferable skills identified by the National Center cover the whole spectrum from quite narrow (e.g., read graphs, operate calculator) to quite broad (e.g., outline plans, self-actualization).

Learning from the Two

The central question underlying the choice between testing during school and testing at the end of school is how you are going to use the test results. If you want to use them for what evaluators call *formative* purposes—*improving* the curricula and instructional practices for teaching minimum competencies and transferable skills—then you should test *during school.* If you want to use them for what evaluators call *summative* evaluation—*judging* the final results of the curricula and instructional practices in teaching minimum competencies and transferable skills—then you should test at the *end of school.*

Improving through Formative Evaluation

The purpose of formative evaluation is to influence the shape of the soft clay while it is still being "formed" and can be changed readily. The techniques of formative evaluation include frequent inspection of processes while they are still underway (monitoring, supervision), pilot testing small components of a program to see whether they work, using a program on a small group of students to see whether they learn, troubleshooting a defective program to find out exactly why it is not working, making trial modifications in a program to see whether you get better results, and making mid-stream changes to keep a program from failing.

All such approaches require collecting information frequently, analyzing it promptly, and feeding it back immediately. That is, formative evaluation means sticking close to the program as it unfolds, making continual observations, and reporting them to the program director without delay so as to guide mid-course corrections. Thus, if the purpose of testing minimum competencies and transferable skills is to improve the program for teaching them, they must be tested during school.

Judging through Summative Evaluation

The purpose of summative evaluation is to summarize the final outcomes of the program, explaining whether the program worked—and why. The clay has been fired in the kiln; the finished article cannot be changed now, but it can be judged and explained. The techniques of summative evaluation include a careful examination of the historical record of the program to understand what took place, field testing the entire program in a variety of circumstances to find whether it works under some conditions but not others, studying relationships among diverse kinds of information to see whether one thing led to another, and recommending under what conditions the program should be used in the future.

All such approaches require collecting a considerable amount of information, analyzing it thoroughly, and making a careful report as to how well the program worked for whom, under what conditions, and for what reasons. Summative evaluation requires developing a perspective on the program, understanding the several factors influencing its outcomes, and detecting relationships among those factors so as to explain the outcomes. Thus, if the purpose of testing minimum competencies and transferable skills is to judge and explain the program, they must be tested at the end of school so that all significant factors will have exerted their influence on the results.

Measuring the Program versus Measuring the Results

In a research sense, tests of competencies and skills measure the "dependent variables" while information about the program measures the "independent variables." If minimum competencies or transferable skills are the dependent variables—the effects—what are the independent variables—the causes of those effects? Three of the fundamental causes are the curriculum, the instructional materials, and the teaching practices. Those three are of particular interest because all three can be influential and all three can be improved.

Explaining the Results and Improving the Program

Whether the evaluation is formative or summative, you need to collect information about the curriculum, the instructional materials, and the teaching practices. Without it, a summative evaluation cannot explain the results and a formative evaluation cannot improve the program. Here are some examples of information needed to explain and improve what is happening.

Curriculum. There are several ways curricular shortcomings can be identified and improved if test results show that students are not learning minimum competencies or transferable skills. Here are some of them:

- Use the minimum competency tests or the transferable skills tests as templates for inspecting the curriculum to see whether it addresses those skills.
- Check the sequence in which the skills are presented to see whether the sequence makes instructional logic, which is not necessarily the same as intellectual logic.
- Find out whether the skills are presented in a variety of contexts to emphasize their usefulness and demonstrate their transferability.
- See whether there is sufficient repetition and whether there are enough opportunities for practice so the students become proficient in the skills rather than merely familiar with them.

Materials. If students are not learning minimum competencies and transferable skills as they should, the blame may belong to the instructional materials rather than to the curricular design. Even though the curriculum itself is well constructed for teaching minimum competencies or transferable skills, the materials may have flaws such as these:

- Reading level too difficult for students.
- Insufficient number of examples drawn from various settings.
- Routine, unimaginative drill and practice exercises.
- Unattractive appearance or inconvenient format.

Teaching practices. Even if the curriculum and materials are properly designed, the teaching practices may not be good enough to make them work. Classroom practices can be inspected for such shortcomings as these:

- The teacher is active but the students are passive.
- Teachers are not following the curriculum, not using the materials.
- There is no variation for individual differences among students.
- Students are not told how they are coming along.

WHAT TO DO WITH THE INCOMPETENT?

Minimum Competencies

When you find incompetent students, what can you do? Must you either help them meet the standards or stop them in their tracks? Are those your only choices?

Alternatives

Here are six distinct steps you can take once you locate incompetent students.

Verify the findings. You might give another test to be sure that the findings are correct, especially if you have any doubt about the quality of the competency test itself, about the attitude of the students when taking it, or about the conditions under which it was given. You might retest immediately or wait until the same time next year. Confirming the results can be useful since those students identified as incompetent will be less likely to challenge and less able to overturn findings based on two testings.

Give more chances. You might simply notify students that they did not perform well and that they will be given another chance to pass the test after time elapses. This would be a reasonable step if you believed that those found incompetent would improve through maturation, personal initiative, or help from family and friends. After all, the first test might alert parents so that they could arrange for help outside of school—or simply have the student try harder the second time.

Lower the standards. You might drop the minimum acceptable passing score low enough so that those students first declared incompetent were declared competent. This would make sense if you felt that you made the passing score unrealistically high the first time around. It would also make sense if you could not handle the number of incompetents identified by the first passing score.

Redesign programs/remediate students. You might modify the school program to make it more effective in reaching all students—especially those at the bottom of the achievement scale. Or you might provide remedial help to individual students. Those steps would make sense if you believed that the problem lay in the school program rather than in the competency tests themselves. If the purpose of competency testing is to locate and help the incompetent, that can only be accomplished by improving school programs and remediating deficient students.

Stop school operations/stop student advancement. You might suspend the operations of the school—or actually close it—as a means of eliminating incompetent student performance in the future. Similarly, you might refuse promotion or graduation to students rather than move incompetents through the system or out of it into the adult world. Those steps would make sense if you felt that the school program could not be corrected or there were too little time left to remediate students' deficiencies before they moved on to the next grade or left the system entirely.

Refuse accreditation/refuse diploma. You might allow an incompetent school to continue operating but refuse to accredit it. Similarly, you might allow a student to graduate but refuse to grant a diploma, issuing a certificate of attendance instead. Those would be reasonable steps if you felt that it would be impossible or not worthwhile to correct the deficiencies or to prevent the school or person from continuing. Granting accreditation or diplomas to the incompetent might serve notice to those farther upstream that the purpose of the testing is not serious, that the standards are not real, and that they need not be met. Indeed, the desire for accreditation on the part of schools and the desire for diplomas on the part of students might be sufficiently motivating to cause better performance if they are withheld.

Retention, remediation, or labeling. Whether you are requiring each student to be competent or each school to make a majority of its students competent, you can check the findings, give them another chance to succeed, lower the standards, remediate the program or the students, insist they meet standards before continuing, or let them go on but advertise their shortcomings to outsiders.

If you focus on *students,* each incompetent one must be held back, or remediated, or labeled and sent on. if you focus on *schools,* current students can be moved on through uninterrupted—most places are doing exactly that, by the way: passing the current crop through without applying their new minimum standards—but, to help future students, the school must be closed, or improved, or left open but have a skull and crossbones painted on the door.

Making the choice. Deciding whether to retain, remediate, or label means reviewing your purposes for giving minimum competency tests in the first place.

Are you trying to stop automatic promotion and automatic graduation? If so, holding back unsuccessful students is a vivid way of reminding them, their parents, and their teachers that you have adopted achievement promotion and achievement graduation.

Are you trying to re-educate students who missed the essentials the first time through? If so, remedial teachers, classes, and materials will be your choice. Retention itself will not re-educate.

Are you trying to notify schools and employers—and students themselves—about what students have actually learned? If so, truth-in-academic-packaging is what you want. You need clear labels to tell the outside world what the student knows.

Better think about that.

Transferable Skills

If you set standards for students to learn transferable skills but they fail to meet those standards, what should you do? Should you try again to teach them, guide the students into career pathways that don't require them, warn employers that students don't have transferable skills, or what?

Alternatives

Here are seven possible steps you can take if you find the students have not developed the transferable skills they need when you make a midpoint check at, say, the end of grade 10.

Remediate students. You might decide to try again. Perhaps the students can still learn transferable skills in their remaining years of school, especially if you shift to different techniques. Perhaps the problem is motivational: Students don't realize the importance of learning the transferable skills. You can try again to underline their significance. Perhaps the problem is instructional: Students can't learn the skills in large groups. You can try small group instruction, individual tutoring, perhaps peer tutoring. You can run extra classes after school, on weekends, or during the summers so that students get extra instruction while trying to keep up with their regular classes as well.

Redesign past program. You might decide to look backward and try to figure out why the program failed to teach transferable skills. Perhaps the problem is the curriculum: Transferable skills are not built into the design for each course. You can go to work redesigning the curriculum. Perhaps the problem is the instructional materials: Transferable skills are not incorporated into them in a clear and attractive way. You can select or produce new materials to replace them. Perhaps the problem is teachers' skills: Teachers don't know how to teach transferable skills. You can create inservice courses to show them how. Perhaps the problem is supervisory: No one encourages teachers to teach transferable skills in their classes, shows them how, and insists that they do it. You could tighten up the supervisory system.

Intensify future teaching of transferable skills. You might decide to look forward rather than looking backward. That is, you might reject remediation and reject revising the past program in favor of good teaching in the future. Looking at what lies ahead, you might examine the curricula, the materials, the inservice training, and the supervisory system to see whether transferable skills will be taught sufficiently to make remediation unnecessary. With a good regular program, students can simply learn in the future what they have failed to learn in the past.

Intensify future teaching of specialized skills. You might take another approach entirely in dealing with students who have not yet learned the transferable skills. That would be to give up on teaching them to those students. Figure that transferable skills are highly desirable but not essential for employment. Figure that a person who is highly skillful, albeit with a narrow set of skills, can nonetheless get a job and keep it. After all, it will cost an employer less for the initial training of such a person than for someone else who has transferable skills but lacks training for specific jobs. Figure that such a person will demonstrate his or her value on the job not by being highly flexible but by being highly productive.

Guide students into slow-changing occupational fields. You might solve the problem through guidance counseling rather than through remediation or curricular change. The counselor's job will be to make it clear to students that they lack transferable skills and then to guide them into occupational areas that are likely to change slowly and not require the employee to make frequent job shifts. The hospitality and recreation job cluster offers examples of jobs in which skill requirements change little over the years. So does the fine arts and humanities occupational cluster. The same thing is true of lower-level jobs in the marketing and distribution cluster and in the transportation cluster.

Notify employers that students lack transferable skills. You might solve the problem yet another way: Simply give the outside world an honest description of what the student can and cannot do. Employers, for example, can then decide whether they want to hire people who lack the potential for making lateral and vertical job changes. One option open to the employer, of course, is to run a training program for such employees, attempting to provide them with the transferable skills they lack. Some employers do that today.

Help students create a self-development plan. You might decide that the only thing you need to do—or can do—is to confront the student with a realistic profile of his or her present skills, point out the shortcomings of that profile, and strongly encourage the student to make a personal plan for making up those shortcomings. The plan could include voluntary study in remedial classes offered by the high school, independent study guided by a special reading list, postsecondary education that includes courses in the missing skills, work experience in jobs specifically selected to give training and/or practice in those skills, correspondence courses, part-time adult courses taken at night concomitantly with a full-time job, and so on. Helping deficient students create such plans would clearly be useful to them as well as giving the school a clear conscience that it had not misled the student about his or her readiness to enter the world of work.

Learning from the Two

The concept of transferable skills as well as the concept of minimum competencies have at their cores the idea of identifying a set of extremely valuable skills that students learn during a long period of schooling and use throughout their lifetimes. Leaders in both movements must realize that some students will not learn the transferable skills or the minimum competencies on the schedule intended. Since the leaders of both movements insist that the skills must be learned for successful adulthood, they must decide what to do with students who fail to learn them.

The options that each movement offer differ from each other somewhat, primarily because the minimum competency movement is oriented toward measurement (and the uncertainties of measurement) while the transferable skills movement is oriented toward skill identification and development in individuals (and the uncertainties they involve). On the other hand, the options are somewhat alike because both movements must decide whether to redo what they have not done, try to do it in the future, or simply settle for what they have been able to accomplish.

Measurement Options

Here are three alternatives that assume that the problem of incompetent students can be solved by changing the devices used to measure incompetence.

Verify the findings. This option assumes that something is wrong—or may be wrong—with the original measuring device. Solution: Get another instrument and see what measurement it gives.

Give more chances. This option assumes that the instrument may have made an erroneous measurement the first time. Solution: Take another measurement with the same instrument. Using this option also allows for the possibility that students could have passed the test the first time but weren't trying, and for the possibility that students can and will learn the competencies on their own once they realize the school means business.

Lower the standards. This option assumes that the first standards were unrealistic. Neither remediation nor a modified program will ever get the students up to it. Solution: Drop the standards.

Remediation Options

Here are three alternatives that assume that the student has the capacity to learn but has not been properly motivated or taught in the past. They assume that the student can be motivated or taught in the future, perhaps using different techniques. They also assume that the basic program is satisfactory, at least for many students, and that the solution lies in special treatment for those who failed to make it in the regular program for some reason.

Repeat the course/grade. This option assumes that the student can learn the material from the regular program if only he or she can be motivated to study. Or, it assumes that the student has grown up or settled down, and will pay attention and study the second time through.

Offer remediation. This option assumes that a word to the wise is sufficient and that the student will volunteer for optional remediation. It also assumes, of course, that the regular instruction is not satisfactory for the student and that he or she needs something different.

Mandate remediation. This option assumes that even now the student has to be not only led to water but made to drink it. And it assumes that the water cannot be what was served up the first time.

Program Modification Options

Here are four alternatives that assume that something is wrong with the regular program and that it should be repaired—not allowed to keep on turning out students who lack essential skills and competencies.

Revise curriculum. This solution assumes that the curriculum is the culprit. It allows too little time or uses too few examples or provides too little repetition for students to learn the skill.

Revise materials. This solution assumes that the curriculum has been designed correctly but that the teaching materials are unsatisfactory. Their exposition is murky, useful examples are sparse, or the format is unappetizing.

Revise supervision. This alternative assumes that the curriculum and materials are satisfactory, but that no one pays attention to whether teachers are using them as they should. The solution is a supervisory scheme that will get the curriculum and materials to come to life in the classroom.

Revise teacher training. This solution assumes that teachers do not know how to teach the skills and competencies. Changing the curriculum, the materials, and the supervisory system won't help. Teachers must instead be trained.

Guidance Options

Here are two alternatives that assume that you must settle for what you have accomplished—that remediation won't help past students and program modification won't help future students. The only thing to be done is to help students make the best of what they've learned.

Guide students into low-pressure situations. This alternative assumes that students ought to be told their limitations and helped to find postsecondary schools and jobs where they can succeed despite the limitations.

Guide students into self-development. This alternative assumes that students can do for themselves what the schools failed to do. Guidance counselors would help students think through how they could make up their deficiencies in future years through formal and informal study.

Labeling Options

Here are three alternatives that assume that the student cannot learn the skills and competencies. Having done what it can, the school is finished—except to warn society that the graduate is deficient.

No diploma. Perhaps the most vivid warning is the lack of a high school diploma. If the student cannot produce one, it is clear to postsecondary schools, the military, employers, and others that the student lacks certain essential skills and competencies.

Restricted diploma. Another way to notify society that students are deficient is to give them second-class diplomas indicating school completion with a satisfactory but not brilliant record, or simply to staple their high school transcripts to their diplomas so that prospective employers and others can see exactly what courses they took and how well they did.

Certificate of attendance. A third way to alert society to the shortcomings of graduates is to issue certificates indicating that they stayed in school twelve years but not indicating what they learned—a clear case of *caveat emptor.*

SUMMARY

The purpose of this paper is to compare and contrast Minimum Competency Testing and Transferable Skills in order to identify the important questions and issues to be considered by educational planners in developing programs intended to prepare students to meet the demands of both work and life. Both movements address concerns about the content and standards of education, particularly their utility in the world of work. Each movement, however, takes a unique approach. Each has advantages and disadvantages, similarities and dissimilarities. Neither offers a perfect solution to any of the problems, although one or the other (and, occasionally, both) offers partial solutions to some problems in some contexts.

Some of the pertinent issues addressed by the paper include: choosing competencies or skills; choosing the best sets of competencies or skills to match the perceived future needs—practical and/or affective—of students; how many competencies or skills to choose for what students in which contexts; how to measure each, and the limitations of such measurements; when to conduct measurements, that is, during or at the conclusion of each course or all course-work, or in some combination; and, alternative options for dealing with those students unable to fulfill the chosen measurement standards. Where possible, charts to guide work in defining needs and goals are offered in the discussions.

Many of the issues raised may present unique problems for different educational systems. To help guide the decision-making process, the alternatives are generally presented as distinct choices. Such neatly drawn alternatives do not always reflect the realities of specific situations, but the arguments presented in support of each alternative offer a starting point for critical thinking and analysis.

This paper does not attempt to offer a panacea. Rather, it is intended to clarify and highlight the critical areas of concern regarding the potential advantages and disadvantages inherent in the Minimum Competency Testing movement and the Transferable Skills movement.

APPENDIX

Examples of Transferable Skills and Characteristics

SUMMARY OF GENERIC SKILLS*

Mathematics Skills (11 areas; 34 skill areas; 192 sub-divisions of skills)

1. *Whole numbers:* Read, write, and count; add and subtract; multiply and divide; word problems; round off
2. *Fractions:* Read and write; add and subtract; multiply and divide; word problems
3. *Decimals:* Dollars and cents; read, write and round off; multiply and divide; add and subtract; word problems
4. *Percent:* Read and write; ratio; proportion; percentage; rate; principle
5. *Mixed operations:* Equivalents; order of operations; word problems; quick calculations; average
6. *Measure:* Read graduated scales; read verniers; time; weight; distance; capacity
7. *Metric measure:* Weight; distance; capacity; weight conversion; distance conversion; capacity conversion
8. *Geometric figures:* Forms and figures; angles; draw, sketch; perimeters; areas; volumes
9. *Drawings and graphs:* Read graphs; read scale drawings; read assembly diagrams; read schematic drawings; draw graphs; measure from scale drawings; draw to scale
10. *Algebra:* Single variable, open sentences; single variable, powers and roots; solve given formulas; integers and rationals; variables and expressions; two variable, open sentences; quadratics
11. *Calculations:* Logs; slide rule; trigonometry calculations; calculator

Communications Skills (7 areas)

12. *Words:* Plurals; prefixes, suffixes, and root words; contractions and abbreviations; dictionary; synonyms, antonyms, and homonyms; meaning and context; books
13. *Listen:* Literal comprehension; interpretive comprehension; evaluative comprehension

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*Kawula, H. J., & Smith, A. D. *Generic skills: Handbook of occupational information.* Prince Albert, SK: Canada Manpower and Immigration Department, Training Research and Development Station, 1975.

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14. *Talk:* Pronunciation; diction and word choice; fluency; organization of ideas; ask 6W questions; give information and directions; use telephone

15. *Read I:* Literal comprehension; interpretive comprehension; evaluative comprehension

16. *Read II:* Forms; notes; letters or memos; charts and tables; manuals; Roman numerals X; Roman numerals XXX; Roman numerals M

17. *Write I:* Phrases on forms; sentences on forms; paragraphs on forms; sentences; paragraphs; short notes; take notes

18. *Write II:* Form letters; single paragraph letters; internal memos; business letters; information reports; recommendation reports; technical reports

Interpersonal Skills (7 areas)

19. *Attending behaviors:* Physical; cognitive; reactive; covert

20. *One to one conversation:* Elementary conversation; task focused conversation; express own point of view; personable conversation; persuasive presentation

21. *Group discussion:* Preparation; presentation of information or directions; control group decision making; group maintenance; participate in group discussion; respond to information or directions; persuasive presentation

22. *Oral presentations:* Preparation; factual information; listen, respond; conceptual; persuasive; reactive

23. *Instructional communication:* Establish training; instruction; demonstration; monitor; evaluate

24. *Supervisory communication:* Give directions; demonstrate; give praise; give discipline; prepare evaluation reports

25. *Interview/counsel communication:* Preparation; closed questions; open questions; confrontation; interview customers; interview job applicants; negotiate

Reasoning Skills (9 areas)

26. *Obtain job related information:* Tools, materials, and equipment; methods and procedures; sequence; other information; theories

27. *Organize information:* Sort objects; sort data; rate; rank; develop classifications

28. *Estimate:* Time; weight; distance; area; capacity; cubic measures; costs

29. *Tasks:* Sequence; priority

30. *Objectives and methods:* Goals; activities; alternatives; criteria; priority; analysis; deduction

31. *Diagnosis:* Cause and effect relationships; possible problems; priorities; possible methods; probing questions; use senses

32. *Problem solving:* Relevant information; alternative statements; select statement; alternative solutions; select alternative

33. *Plan and coordinate:* Activities and sequences; outline plan; identify resources; estimate resources; critical activities; detailed plan; resource requisitions

34. *Implement work:* Monitor results; standards of quality; standards of quantity; standards of completion time; priorities of standards; authority and responsibility; update plans

COMPOSITE LIST OF TRANSFERABLE SKILLS*

Intellectual/Aptitudinal

- Communicating
- Problem Solving
- Analyzing/Assessing
- Planning/Layout
- Organizing
- Decision Making
- Creativity/Imagination/Innovation
- Problem Identification/Definition
- Managing One's Own Time
- Basic Computation
- Logical Thinking
- Evaluating
- Ability to Relate Common Knowledge or Transfer Experiences
- Coping with the Labor Market and Job Movement
- Understanding Others
- Synthesizing
- Marshalling Available Resources
- Accommodating Multiple Demands
- Judgment
- Foresight
- Trouble Shooting
- Job Awareness
- Mechanical Aptitude
- Typing
- Accounting
- Implementing
- Self-Understanding, Awareness, Actualization
- Situational Analysis
- Assessing Environments/Situations
- Understanding Human System Interactions
- Organizational Savvy
- Conceptualization
- Generalization
- Goal Setting
- Controlling
- Quantitative Thinking
- Dealing with Work Situations
- Finance
- Tool Usage
- Bookkeeping
- Artistic Ability
- Business Sense
- Tolerance of Ambiguity

Interpersonal

- Working with, Getting along with, or Relating to Others
- Managing, Directing, or Supervising
- Empathizing or Being Sensitive to Others
- Teaching, Training, or Instructing
- Counseling
- Motivating
- Gaining Acceptance or Building Rapport
- Helping, or Cooperating
- Cultivating Cooperation
- Selling
- Accepting Supervision
- Delegating
- Instilling Confidence
- Team Building

Attitudinal

- Diligence or a Positive Attitude toward the Value of Work

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*Wiant, A. A. *Transferable skills: The employers' viewpoint.* Columbus: The Ohio State University, The Center for Vocational Education, 1977. (Info. Series No. 126)

Attitudinal (Continued)

Receptivity/Flexibility/Adaptability
Determination/Perseverance
Acceptance/Appreciation/Concern for Others
Responsibility
Willingness to Learn
Ambition/Motivation
Self-Confidence
Self-Discipline
Pride
Enthusiasm
Patience
Self-Actualization
Assertiveness
Honesty
Loyalty
Reliability
Risk Taking
Compromising
Kindness

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A review of what is known about the range of occupation-related skills and characteristics that could be considered transferable from one occupation to another, describing those transferable skills which are teachable in secondary and postsecondary career preparation programs.

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A report comparing and contrasting potential impact of the transferable skills and minimum competency testing movements on school programs, staff, and students. Key questions and alternative strategies are presented to assist educational planners and administrators in formulating policy and establishing promotion or completion criteria in secondary and postsecondary education.